

RAW SEQUENCE LISTING

**The Biotechnology Systems Branch of the Scientific and Technical
Information Center (STIC) no errors detected.**

Application Serial Number: 10/562, 021
Source: JFWP
Date Processed by STIC: 01/04/2006

ENTERED



IFWP

RAW SEQUENCE LISTING

DATE: 01/04/2006

PATENT APPLICATION: US/10/562,021

TIME: 10:35:43

Input Set : A:\Sequence.ST25.txt

Output Set: N:\CRF4\01042006\J562021.raw

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3 <110> APPLICANT: Svendsen, Allan
4     Beier, Lars
5     Spendler, Tina
6     Jensen, Morten
7     Jorgensen, Christel
9 <120> TITLE OF INVENTION: CGTASE VARIANTS
11 <130> FILE REFERENCE: 10340.204-US
C--> 13 <140> CURRENT APPLICATION NUMBER: US/10/562,021
C--> 13 <141> CURRENT FILING DATE: 2005-12-22
13 <160> NUMBER OF SEQ ID NOS: 3
15 <170> SOFTWARE: PatentIn version 3.3
17 <210> SEQ ID NO: 1
18 <211> LENGTH: 686
19 <212> TYPE: PRT
20 <213> ORGANISM: Bacillus stearothermophilus
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28 Asp Arg Phe Tyr Asp Gly Asp Thr Thr Asn Asn Asn Pro Ala Lys Ser
29          20          25          30
32 Tyr Gly Leu Tyr Asp Pro Thr Lys Ser Lys Trp Lys Met Tyr Trp Gly
33          35          40          45
36 Gly Asp Leu Glu Gly Val Arg Gln Lys Leu Pro Tyr Leu Lys Gln Leu
37          50          55          60
40 Gly Val Thr Thr Ile Trp Leu Ser Pro Val Leu Asp Asn Leu Asp Thr
41 65          70          75          80
44 Leu Ala Gly Thr Asp Asn Thr Gly Tyr His Gly Tyr Trp Thr Arg Asp
45          85          90          95
48 Phe Lys Gln Ile Glu Glu His Phe Gly Asn Trp Thr Thr Phe Asp Thr
49          100         105         110
52 Leu Val Asn Asp Ala His Gln Asn Gly Ile Lys Val Ile Val Asp Phe
53          115         120         125
56 Val Pro Asn His Ser Thr Pro Phe Lys Ala Asn Asp Ser Thr Phe Ala
57          130         135         140
60 Glu Gly Gly Ala Leu Tyr Asn Asn Gly Thr Tyr Met Gly Asn Tyr Phe
61 145         150         155         160
64 Asp Asp Ala Thr Lys Gly Tyr Phe His His Asn Gly Asp Ile Ser Asn
65          165         170         175
68 Trp Asp Asp Arg Tyr Glu Ala Gln Trp Lys Asn Phe Thr Asp Pro Ala
69          180         185         190
72 Gly Phe Ser Leu Ala Asp Leu Ser Gln Glu Asn Gly Thr Ile Ala Gln
73          195         200         205
76 Tyr Leu Thr Asp Ala Ala Val Gln Leu Val Ala His Gly Ala Asp Gly

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77      210      215      220
80 Leu Arg Ile Asp Ala Val Lys His Phe Asn Ser Gly Phe Ser Lys Ser
81 225      230      235      240
84 Leu Ala Asp Lys Leu Tyr Gln Lys Lys Asp Ile Phe Leu Val Gly Glu
85      245      250      255
88 Trp Tyr Gly Asp Asp Pro Gly Thr Ala Asn His Leu Glu Lys Val Arg
89      260      265      270
92 Tyr Ala Asn Asn Ser Gly Val Asn Val Leu Asp Phe Asp Leu Asn Thr
93      275      280      285
96 Val Ile Arg Asn Val Phe Gly Thr Phe Thr Gln Thr Met Tyr Asp Leu
97      290      295      300
100 Asn Asn Met Val Asn Gln Thr Gly Asn Glu Tyr Lys Tyr Lys Glu Asn
101 305      310      315      320
104 Leu Ile Thr Phe Ile Asp Asn His Asp Met Ser Arg Phe Leu Ser Val
105      325      330      335
108 Asn Ser Asn Lys Ala Asn Leu His Gln Ala Leu Ala Phe Ile Leu Thr
109      340      345      350
112 Ser Arg Gly Thr Pro Ser Ile Tyr Tyr Gly Thr Glu Gln Tyr Met Ala
113      355      360      365
116 Gly Gly Asn Asp Pro Tyr Asn Arg Gly Met Met Pro Ala Phe Asp Thr
117      370      375      380
120 Thr Thr Thr Ala Phe Lys Glu Val Ser Thr Leu Ala Gly Leu Arg Arg
121 385      390      395      400
124 Asn Asn Ala Ala Ile Gln Tyr Gly Thr Thr Thr Gln Arg Trp Ile Asn
125      405      410      415
128 Asn Asp Val Tyr Ile Tyr Glu Arg Lys Phe Phe Asn Asp Val Val Leu
129      420      425      430
132 Val Ala Ile Asn Arg Asn Thr Gln Ser Ser Tyr Ser Ile Ser Gly Leu
133      435      440      445
136 Gln Thr Ala Leu Pro Asn Gly Ser Tyr Ala Asp Tyr Leu Ser Gly Leu
137      450      455      460
140 Leu Gly Gly Asn Gly Ile Ser Val Ser Asn Gly Ser Val Ala Ser Phe
141 465      470      475      480
144 Thr Leu Ala Pro Gly Ala Val Ser Val Trp Gln Tyr Ser Thr Ser Ala
145      485      490      495
148 Ser Ala Pro Gln Ile Gly Ser Val Ala Pro Asn Met Gly Ile Pro Gly
149      500      505      510
152 Asn Val Val Thr Ile Asp Gly Lys Gly Phe Gly Thr Thr Gln Gly Thr
153      515      520      525
156 Val Thr Phe Gly Gly Val Thr Ala Thr Val Lys Ser Trp Thr Ser Asn
157      530      535      540
160 Arg Ile Glu Val Tyr Val Pro Asn Met Ala Ala Gly Leu Thr Asp Val
161 545      550      555      560
164 Lys Val Thr Ala Gly Gly Val Ser Ser Asn Leu Tyr Ser Tyr Asn Ile
165      565      570      575
168 Leu Ser Gly Thr Gln Thr Ser Val Val Phe Thr Val Lys Ser Ala Pro
169      580      585      590
172 Pro Thr Asn Leu Gly Asp Lys Ile Tyr Leu Thr Gly Asn Ile Pro Glu
173      595      600      605

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176 Leu Gly Asn Trp Ser Thr Asp Thr Ser Gly Ala Val Asn Asn Ala Gln
177      610                      615                      620
180 Gly Pro Leu Leu Ala Pro Asn Tyr Pro Asp Trp Phe Tyr Val Phe Ser
181 625                      630                      635                      640
184 Val Pro Ala Gly Lys Thr Ile Gln Phe Lys Phe Phe Ile Lys Arg Ala
185                      645                      650                      655
188 Asp Gly Thr Ile Gln Trp Glu Asn Gly Ser Asn His Val Ala Thr Thr
189                      660                      665                      670
192 Pro Thr Gly Ala Thr Gly Asn Ile Thr Val Thr Trp Gln Asn
193      675                      680                      685
196 <210> SEQ ID NO: 2
197 <211> LENGTH: 683
198 <212> TYPE: PRT
199 <213> ORGANISM: Thermoanaerobacterium thermosulfurigenes
201 <400> SEQUENCE: 2
203 Ala Ser Asp Thr Ala Val Ser Asn Val Val Asn Tyr Ser Thr Asp Val
204 1                      5                      10                      15
207 Ile Tyr Gln Ile Val Thr Asp Arg Phe Val Asp Gly Asn Thr Ser Asn
208      20                      25                      30
211 Asn Pro Thr Gly Asp Leu Tyr Asp Pro Thr His Thr Ser Leu Lys Lys
212      35                      40                      45
215 Tyr Phe Gly Gly Asp Trp Gln Gly Ile Ile Asn Lys Ile Asn Asp Gly
216      50                      55                      60
219 Tyr Leu Thr Gln Pro Val Glu Asn Ile Tyr Ala Val Leu Pro Asp Ser
220 65                      70                      75                      80
223 Thr Phe Gly Gly Ser Thr Ser Tyr His Gly Tyr Trp Ala Arg Asp Phe
224      85                      90                      95
227 Lys Arg Thr Asn Pro Tyr Phe Gly Ser Phe Thr Asp Phe Gln Asn Leu
228      100                     105                     110
231 Ile Asn Thr Ala His Ala His Asn Ile Lys Val Ile Ile Asp Phe Ala
232      115                     120                     125
235 Pro Asn His Thr Ser Pro Ala Ser Glu Thr Asp Pro Thr Tyr Ala Glu
236      130                     135                     140
239 Asn Gly Arg Gly Met Gly Val Thr Ala Ile Trp Ile Ser Leu Tyr Asp
240 145                     150                     155                     160
243 Asn Gly Thr Leu Leu Gly Gly Tyr Thr Asn Asp Thr Asn Gly Tyr Phe
244      165                     170                     175
247 His His Tyr Gly Gly Thr Asp Phe Ser Ser Tyr Glu Asp Gly Ile Tyr
248      180                     185                     190
251 Arg Asn Leu Phe Asp Leu Ala Asp Leu Asn Gln Gln Asn Ser Thr Ile
252      195                     200                     205
255 Asp Ser Tyr Leu Lys Ser Ala Ile Lys Val Trp Leu Asp Met Gly Ile
256      210                     215                     220
259 Asp Gly Ile Arg Leu Asp Ala Val Lys His Met Pro Phe Gly Trp Gln
260 225                     230                     235                     240
263 Lys Asn Phe Met Asp Ser Ile Leu Ser Tyr Arg Pro Val Phe Thr Phe
264      245                     250                     255
267 Gly Glu Trp Phe Leu Gly Thr Asn Glu Ile Asp Val Asn Asn Thr Tyr
268      260                     265                     270

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271 Phe Ala Asn Glu Ser Gly Met Ser Leu Leu Asp Phe Arg Phe Ser Gln
272          275          280          285
275 Lys Val Arg Gln Val Phe Arg Asp Asn Thr Asp Thr Met Tyr Gly Leu
276          290          295          300
279 Asp Ser Met Ile Gln Ser Thr Ala Ser Asp Tyr Asn Phe Ile Asn Asp
280 305          310          315          320
283 Met Val Thr Phe Ile Asp Asn His Asp Met Asp Arg Phe Tyr Asn Gly
284          325          330          335
287 Gly Ser Thr Arg Pro Val Glu Gln Ala Leu Ala Phe Thr Leu Thr Ser
288          340          345          350
291 Arg Gly Val Pro Ala Ile Tyr Tyr Gly Thr Glu Gln Tyr Met Thr Gly
292          355          360          365
295 Asn Gly Asp Pro Tyr Asn Arg Ala Met Met Thr Ser Phe Asn Thr Ser
296          370          375          380
299 Thr Thr Ala Tyr Asn Val Ile Lys Lys Leu Ala Pro Leu Arg Lys Ser
300 385          390          395          400
303 Asn Pro Ala Ile Ala Tyr Gly Thr Thr Gln Gln Arg Trp Ile Asn Asn
304          405          410          415
307 Asp Val Tyr Ile Tyr Glu Arg Lys Phe Gly Asn Asn Val Ala Leu Val
308          420          425          430
311 Ala Ile Asn Arg Asn Leu Ser Thr Ser Tyr Asn Ile Thr Gly Leu Tyr
312          435          440          445
315 Thr Ala Leu Pro Ala Gly Thr Tyr Thr Asp Val Leu Gly Gly Leu Leu
316          450          455          460
319 Asn Gly Asn Ser Ile Ser Val Ala Ser Asp Gly Ser Val Thr Pro Phe
320 465          470          475          480
323 Thr Leu Ser Ala Gly Glu Val Ala Val Trp Gln Tyr Val Ser Ser Ser
324          485          490          495
327 Asn Ser Pro Leu Ile Gly His Val Gly Pro Thr Met Thr Lys Ala Gly
328          500          505          510
331 Gln Thr Ile Thr Ile Asp Gly Arg Gly Phe Gly Thr Thr Ser Gly Gln
332          515          520          525
335 Val Leu Phe Gly Ser Thr Ala Gly Thr Ile Val Ser Trp Asp Asp Thr
336          530          535          540
339 Glu Val Lys Val Lys Val Pro Ser Val Thr Pro Gly Lys Tyr Asn Ile
340 545          550          555          560
343 Ser Leu Lys Thr Ser Ser Gly Ala Thr Ser Asn Thr Tyr Asn Asn Ile
344          565          570          575
347 Asn Ile Leu Thr Gly Asn Gln Ile Cys Val Arg Phe Val Val Asn Asn
348          580          585          590
351 Ala Ser Thr Val Tyr Gly Glu Asn Val Tyr Leu Thr Gly Asn Val Ala
352          595          600          605
355 Glu Leu Gly Asn Trp Asp Thr Ser Lys Ala Ile Gly Pro Met Phe Asn
356          610          615          620
359 Gln Val Val Tyr Gln Tyr Pro Thr Trp Tyr Tyr Asp Val Ser Val Pro
360 625          630          635          640
363 Ala Gly Thr Thr Ile Gln Phe Lys Phe Ile Lys Lys Asn Gly Asn Thr
364          645          650          655
367 Ile Thr Trp Glu Gly Gly Ser Asn His Thr Tyr Thr Val Pro Ser Ser

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368          660          665          670
371 Ser Thr Gly Thr Val Ile Val Asn Trp Gln Gln
372          675          680
375 <210> SEQ ID NO: 3
376 <211> LENGTH: 683
377 <212> TYPE: PRT
378 <213> ORGANISM: Thermoanaerobacter sp.
380 <400> SEQUENCE: 3
382 Ala Pro Asp Thr Ser Val Ser Asn Val Val Asn Tyr Ser Thr Asp Val
383 1          5          10          15
386 Ile Tyr Gln Ile Val Thr Asp Arg Phe Leu Asp Gly Asn Pro Ser Asn
387          20          25          30
390 Asn Pro Thr Gly Asp Leu Tyr Asp Pro Thr His Thr Ser Leu Lys Lys
391          35          40          45
394 Tyr Phe Gly Gly Asp Trp Gln Gly Ile Ile Asn Lys Ile Asn Asp Gly
395          50          55          60
398 Tyr Leu Thr Gly Met Gly Ile Thr Ala Ile Trp Ile Ser Gln Pro Val
399 65          70          75          80
402 Glu Asn Ile Tyr Ala Val Leu Pro Asp Ser Thr Phe Gly Gly Ser Thr
403          85          90          95
406 Ser Tyr His Gly Tyr Trp Ala Arg Asp Phe Lys Lys Thr Asn Pro Phe
407          100         105         110
410 Phe Gly Ser Phe Thr Asp Phe Gln Asn Leu Ile Ala Thr Ala His Ala
411          115         120         125
414 His Asn Ile Lys Val Ile Ile Asp Phe Ala Pro Asn His Thr Ser Pro
415          130         135         140
418 Ala Ser Glu Thr Asp Pro Thr Tyr Gly Glu Asn Gly Arg Leu Tyr Asp
419 145         150         155         160
422 Asn Gly Val Leu Leu Gly Gly Tyr Thr Asn Asp Thr Asn Gly Tyr Phe
423          165         170         175
426 His His Tyr Gly Thr Asn Phe Ser Ser Tyr Glu Asp Gly Ile Tyr
427          180         185         190
430 Arg Asn Leu Phe Asp Leu Ala Asp Leu Asp Gln Gln Asn Ser Thr Ile
431          195         200         205
434 Asp Ser Tyr Leu Lys Ala Ala Ile Lys Leu Trp Leu Asp Met Gly Ile
435          210         215         220
438 Asp Gly Ile Arg Met Asp Ala Val Lys His Met Ala Phe Gly Trp Gln
439 225         230         235         240
442 Lys Asn Phe Met Asp Ser Ile Leu Ser Tyr Arg Pro Val Phe Thr Phe
443          245         250         255
446 Gly Glu Trp Tyr Leu Gly Thr Asn Glu Val Asp Pro Asn Asn Thr Tyr
447          260         265         270
450 Phe Ala Asn Glu Ser Gly Met Ser Leu Leu Asp Phe Arg Phe Ala Gln
451          275         280         285
454 Lys Val Arg Gln Val Phe Arg Asp Asn Thr Asp Thr Met Tyr Gly Leu
455          290         295         300
458 Asp Ser Met Ile Gln Ser Thr Ala Ala Asp Tyr Asn Phe Ile Asn Asp
459 305         310         315         320
462 Met Val Thr Phe Ile Asp Asn His Asp Met Asp Arg Phe Tyr Thr Gly

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VERIFICATION SUMMARY

PATENT APPLICATION: US/10/562,021

DATE: 01/04/2006

TIME: 10:35:44

Input Set : A:\Sequence.ST25.txt

Output Set: N:\CRF4\01042006\J562021.raw

L:13 M:270 C: Current Application Number differs, Replaced Current Application No

L:13 M:271 C: Current Filing Date differs, Replaced Current Filing Date